

PATENT Docket No. 373722002400

pa-THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Anthony J. TICKNOR et al.

Serial No.:

10/085,885

Filing Date:

February 27, 2002

For:

MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND

OTHER OPTICAL DEVICES

Examiner: To Be Assigned

Group Art Unit: 2874

PROSECUTION BY ASSIGNEE AND POWER OF ATTORNEY UNDER 37 C.F.R. § 3.71

BOX MISSING PARTS

Assistant Commissioner for Patents Washington, D.C. 20231

Dear Sir:

Lightwave Microsystems Corporation, the assignee of the entire right, title and interest in this patent application, under 37 C.F.R. § 3.71 hereby appoints:

Lisa A. Amii (Reg No. 48,199) Mehran Arjomand (Reg No. 48,231) Erwin J. Basinski (Reg No. 34,773) Richard R. Batt (Reg No. 43,485) Jonathan Bockman (Reg No. 45,640) Barry E. Bretschneider (Reg No. 28,055) Nicholas Buffinger (Reg No. 39,124) Mark R. Carter (Reg No. 39,131) Peng Chen (Reg No. 43,543) Thomas Chuang (Reg No. 44,616) Cara M. Coburn (Reg No. 46,631) Raj S. Davé (Reg No. 42,465) David Devernoe (Reg No. P-50,128) Stephen C. Durant (Reg No. 31,506) Elisabeth M. Evertsz (Reg No. 50,304) David L. Fehrman (Reg No. 28,600)

Randolph Ted Apple (Reg No. 36,429) Laurie A. Axford (Reg No. 35,053) Shantanu Basu (Reg No. 43,318) Vincent J. Belusko (Reg No. 30,820) Kimberly A. Bolin (Reg No. 44,546) Tyler S. Brown (Reg No. 36,465) A. Randall Camacho (Reg No. 46,595) Robert K. Cerpa (Reg No. 39,933) Alex Chartove (Reg No. 31,942) Thomas E. Ciotti (Reg No. 21,013) Matthew M. D'Amore (Reg No. 42,457) Peter Davis (Reg No. 36,119) Karen B. Dow (Reg No. 29,684) Richard R. Eckman (Reg No. 42,504) Carolyn A. Favorito (Reg No. 39,183) Hector Gallegos (Reg No. 40,614)

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Thomas George (Reg No. 45,740) Debra J. Glaister (Reg No. 33,888) Bruce D. Grant (Reg No. 47,608) Douglas G. Hodder (Reg No. 41,840) Charles D. Holland (Reg No. 35,196) Arthur S. Hsieh (Reg No. 48,247) Wayne Jaeschke, Jr. (Reg No. 38,503) Parisa Joriani (Reg No. 46,813) Richard C. Kim (Reg No. 40,046) Lawrence B. Kong (Reg No. P49,043) Glenn Kubota (Reg No. 44,197 Michael J. Mauriel (Reg No. 44,226) Gladys H. Monroy (Reg No. 32,430) Kate H. Murashige (Reg No. 29,959) Martin M. Noonen (Reg No. 44,264) Phillip Reilly (Reg No. 41,415) Robert E. Scheid (Reg. No. 42,126) Terri Shieh-Newton (Reg No. 47,081) Kevin R. Spivak (Reg No. 43,148) Thomas L. Treffert (Reg No. P48,279) Michael R. Ward (Reg No. 38,651) Todd W. Wight (Reg No. 45,218) Frank Wu (Reg No. 41,386) Peter J. Yim (Reg No. 44,417) Karen R. Zachow (Reg No. 46,332)

Deborah S. Gladstein (Reg No. 43,636) Kenneth R. Glick (Reg No. 28,612) Johney U. Han (Reg No. 45,565) Alan S. Hodes (Reg No. 38,185) Kelvan P. Howard (Reg No. P48,999) Jill A. Jacobson (Reg No. 40,030) Madeline I. Johnston (Reg No. 36,174) Ararat Kapouytian (Reg No. 40,044) Cameron A. King (Reg No. 41,897) Kawai Lau (Reg No. 44,461) Rimas T. Lukas (Reg No. 46,451) Robert S. McArthur (Reg No. 45,674) Philip A. Morin (Reg No. P-45,926) Mabel Ng (Reg No. P48,922) Catherine M. Polizzi (Reg No. 40,130) Robert Saltzberg (Reg No. 36,910) Debra A. Shetka (Reg No. 33,309) David Smith (Reg No. 39,839) Stanley H. Thompson (Reg No. 45,160) Brenda J. Wallach (Reg No. 45,193) E. Thomas Wheelock (Reg No. 28,825) Eric Witt (Reg No. 44,408) David T. Yang (Reg No. 44,415) George C. Yu (Reg No. 44,418)

all of Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, California 94304-1018, telephone (650) 813-5600, to prosecute this application and transact all matters in the United States Patent and Trademark Office connected therewith, said appointment to be to the exclusion of the inventors and their attorneys in accordance with the provisions of 37 C.F.R. § 3.71 provided that if any one of said attorneys or agents ceases being affiliated with the law firm of Morrison & Foerster up as partner, employee or of counsel, such attorney's or agent's appointment as attorney or agent and all powers derived therefrom shall terminate on the date such attorney or agent ceases being so affiliated.

Please direct all written communications relative to this application to:

Charles D. Holland Morrison & Foerster LLP 755 Page Mill Road Palo Alto, California 94304-1018 Please direct all telephone communications to Charles D. Holland at (650) 813-5832.

Lightwave Microsystems Corporation a Delaware corporation

Dated:

May 8, 2002

Name:

Martin Lundie

Title: Address:

Vice President and CFO

2911 Zanker Road

San Jose, California 95134

PTO/SB/96 (08-00)

Approved for us through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Entitled: MICROFLUIDIC CONTROL FOR WAVEGUIDE CAND OTHER OPTICAL DEVICES Lightwave Microwave Corporation , a C	Filed/Issue Date: February 27, 2002 PTICAL SWITCHES, VARIABLE ATTENUATORS, Praction Ignee, e.g., corporation, partnership, university, government agency, etc.)
states that it is:	
1. the assignee of the entire right, title, and interest; or	grand and the control of the control
2. an assignee of less than the entire right, title and interest is the extent (by, percentage) of its ownership interest is	
in the patent application/patent identified above by virtue of e	ther:
A. [X]An assignment from the inventor(s) of the patent applica recorded in the United States Patent and Trademark Of copy thereof is attached.	ation/patent identified above. The assignment was fice at Reel, Frame, or for which a
OR .	
B. []A chain of title from the inventor(s), of the patent applica as shown below:	tion/patent identified above, to the current assignee
1. From: To:	
1. From: To: To: The document was recorded in the United States P	atent and Trademark Office at
Reel, Frame, or for which	ch a copy thereof is attached.
2. From:To:To:The document was recorded in the United States P	atent and Trademark Office at
Reel, Frame, or for which	ch a copy thereof is attached.
3. From: To:	
The document was recorded in the United States P	atent and Trademark Office at
Reel, Frame, or for which	ch a copy thereof is attached.
[] Additional documents in the chain of title are listed	on a supplemental sheet.
[] Copies of assignments or other documents in the chain of NOTE: A separate copy (i.e., the original assignment do be submitted to Assignment Division in accordance with the records of the USPTO. See MPEP 302.08]	f title are attached. cument or a true copy of the original document) must
The condension of factors with a prompted between a publication	to get an habaif of the appiance
The undersigned (whose title is supplied below) is authorized	to act on behalf of the assignee.
132y 8, 2002.	Martin Lundie
Date	Wartin Lundie
·	
	Signature
	Vice President and CFO
	Title

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Docket No.: 373722002400

Client Reference: A063

2002

Appleant/Patentee: Anthony J. TICKNOR et al.

Serial No./Patent No.: 10/085,885

Filed on/Issued: February 27, 2002

For: MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND OTHER OPTICAL

DEVICES

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS 37 C.F.R. §§ 1.9 AND 1.27 — SMALL BUSINESS CONCERN

I hereby declare that I am

☐ the owner of the small business concern identified below:

🗵 an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: Lightwave Microsystems Corporation

ADDRESS OF CONCERN: 2911 Zanker Road, San Jose, California 95134

I hereby declare that the above identified small business concern qualifies as a small business concern pursuant to 37 C:F.R×1.27 and 13 C.F.R. § 121.802, for purposes of paying reduced fees to the United States Patent and Trademark Office, and the number of employees of the concern, including those of its affiliates, does not exceed 500 persons.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND OTHER OPTICAL DEVICES by inventor(s) Anthony J. TICKNOR, John T. KENNEY, Giacomo VACCA, Dudley A. SAVILLE, and Ken G. PURCHASE described in:

☐ the specification filed herewith with title as lis	listed	title as lis	title as lis	erewith wi	filed	cation	the specific	
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- III the application identified above.
- ☐ the patent identified above.

If the rights held by the above identified business concern are not exclusive, each individual, concern or organization having rights in the invention qualify for small entity status, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor if that person made the invention, or by any concern which would not qualify as a small business concern under 37 C.F.R. § 1.27, or a nonprofit organization under 37 C.F.R. § 1.27.

Each person, concern or organization having any rights in the invention is listed below:

- In no such person, concern, or organization exists.
- ach such person, concern or organization is listed below.

NAME	ADDRESS	· · · · · · · · · · · · · · · · · · ·	ТУРЕ	
			 ☐ Individual	
			☐ Small Business Concern	
			☐ Nonprofit Organization	

Lacknowledge the duty to file, in this application or patent, notification or any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 C.F.R. § 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING:

ADDRESS OF PERSON SIGNING:

TITLE OF PERSON IF OTHER THAN OWNER: Vice President and CFO

Martin Lundie

2911 Zanker Road, San Jose, California 95134

SIGNATURE:

PTO/SB/10 (10-92) pa-684648



PATENT Docket No. 373722002400 Client Ref. A063

DECLARATION FOR UTILITY PATENT APPLICATION

AS BELOW-NAMED INVENTORS, WE HEREBY DECLARE THAT:

Our residences, post office addresses, and citizenships are as stated below next to our names.

We believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled: MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND OTHER OPTICAL DEVICES, the specification of which is attached hereto unless the following box is checked:

was filed on February 27, 2002 as United States Application Serial No.: 10/085,885.

WE HEREBY STATE THAT WE HAVE REVIEWED AND UNDERSTAND THE CONTENTS OF THE ABOVE-IDENTIFIED SPECIFICATION, INCLUDING THE CLAIMS, AS AMENDED BY ANY AMENDMENT REFERRED TO ABOVE.

We acknowledge the duty to disclose information which is material to the patentability as defined in 37 C.F.R. § 1.56.

We hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Application No.	Collety	Pate of alling - (thy mobility ear)	Priority C	latmed?
			□Yes	□No

We hereby claim benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

Application Sagalano	Rilling Date
60/272,337	02/28/01

We hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of

35 U.S.C. § 112, we acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Application Scrial No.	Filing Date	Status		
		□Patented	□Pending	□Abandoned

We hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent

and that such will issued thereon.	iui jaise statemen	is may jeopardize the validity of the appli-
07-May-62	Auto	tyt
Date	Name:	Anthony J. TICKNOR
	Residence:	V 10952 Barranca Drive, Cupertino, California 95014
	Citizenship:	United States
	Post Office Address:	game as above
		/_ / /
5-8-02 Date	to fee	1. Laceer
Date	Name:	John T. KENNEY
	Regidence:	661 Waverly Street, Palo Alto Palifornia 94301
	Citizenship:	United States
	Post Office Address:	same as above
5/7/02		war Sam
Date	Name:	Giacomo VACCA
	Residence:	862 Arbor Road, Menlo Park, California 94025
	Citizenship:	Maind States Italian Go 5/7/02
	Post Office Address:	same as above
Date	Name:	Dudley A. SAVILLE
	Residence:	244 Dodds La., Princeton, New Jersey 08540
	Citizenship:	United States
	Post Office Address:	same as above
	1 1	
1 /		
5/1/02	Vun Kun	du
Date	Name:	Ken G. PURCHASE
	Residence:	179 Sherland Avenue, Mountain View, California 94043
	Chinamahin.	United States

Post Office Address:

same as above



ASSIGNMENT JOINT



THIS ASSIGNMENT, by Anthony J. TICKNOR, John T. KENNEY, Giacomo VACCA. Dudley A. SAVILLE, and Ken G. PURCHASE (hereinafter referred to as the assignors), residing at 10952 Barranca Drive, Cupertino, California 95014, 661 Waverly Street, Palo Alto, California 94301, 862 Arbor Road, Menlo Park, California 94025, 244 Dodds La., Princeton, New Jersey 08540 and 179 Sherland Avenue, Mountain View, California 94043, respectively, witnesseth:

WHEREAS, said assignors have invented certain new and useful improvements in MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND OTHER OPTICAL DEVICES, set forth in an application for Letters Patent of the United States, bearing Serial No. 10/085,885 and filed on February 27, 2002; and

WHEREAS, Lightwave Microsystems Corporation, a corporation duly organized under and pursuant to the laws of Delaware and having its principal place of business at 2911 Zanker Road, San Jose, California 95134 (hereinafter referred to as the assignee) is desirous of acquiring the entire right, title and interest in and to said inventions and said application for Letters Patent of the United States, and in and to any Letters Patent or Patents, United States or foreign, to be obtained therefor and thereon:

NOW, THEREFORE, in consideration of One Dollar (\$1.00) and other good and sufficient consideration, the receipt of which is hereby acknowledged, said assignors have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto said assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the above-mentioned inventions, application for Letters Patent, and any and all Letters Patent or Patents in the United States of America and all foreign countries which may be granted therefor and thereon, and in and to any and all divisions, continuations and continuations-in-part of said application, or reissues or extensions of said Letters Patent or Patents, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by said assignee, for its own use and the use of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent or Patents may be granted, as fully and entirely as the same would have been held and enjoyed by the assignors, had this sale and assignment not been made.

AND for the same consideration, said assignors hereby covenant and agree to and with said assignee its successors, legal representatives and assigns, that, at the time of execution and delivery of these presents, said assignors are the sole and lawful owners of the entire right, title and interest in and to said inventions and the application for Letters Patent above-mentioned, and that the same are unencumbered and that said assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

AND for the same consideration, said assignors hereby covenant and agree to and with said assignee, its successors, legal representatives and assigns, that said assignors will, whenever counsel of said assignee, or the counsel of its successors, legal representatives and assigns, shall advise that any proceeding in connection with said inventions, or said application for Letters Patent, or any proceeding in connection with Letters Patent for said inventions in any country, including interference proceedings, is lawful and desirable, or that any division, continuation or continuation-inpart of any application for Letters Patent or any reissue or extension of any Letters Patent, to be obtained thereon, is lawful and desirable, sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of Letters Patent for said inventions, without charge to said assignee, its successors, legal representatives and assigns, but at the cost and expense of said assignee, its successors, legal representatives and assigns.

STATE OF Colforns

COUNTY OF Savia Class

BEFORE ME, the undersigned authority, on this that day of May , 2002, personally appeared Blacom bacco known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same of his own free will for the purposes and consideration therein expressed.

BARBARA S. DERIVIER

Commission # 1220188

BARBARA S. DERUYTER
Commission # 1229188
Notary Public - California
Santa Clara County
My Comm. Expires Jul 17, 2003



		المعالمة الأناف المعاومين الأموريين المعاوم المعالم
Date	Dudley A. SAVILLE	COF
STATE OF)) ss.	
COUNTY OF)	
appearedsubscribed to the for	ME, the undersigned authority, on this day of known to regoing instrument and acknowledged to me that he e consideration therein expressed.	me to be the person whose name is
[seal]	Notary Public My Commission Ex	pires:

S/7/02 Ken G. PURCHASE

COPY

STATE OF Colefornia) ss.

My Commission Expires:

[seal]

BARBARA S. DERUYTER
Commission # 1229188
Notary Public - California
Santa Clara County
My Comm. Expires Jul 17, 2003

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p.13

Attorney Docket No.: 373722002400

AND said assignors hereby request the Commissioner of Patents to issue said Letters Patent of the United States to said assignee as the assignee of said inventions and the Letters Patent to be issued thereon for the sole use of said assignee, its successors, legal representatives and assigns.

COUNTY OF SOM

appeared Onthony J. Tiekner known to me to be , 2002, personally known to me to/be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same of his own free will for the purposes and consideration therein expressed.

My Commission Expires:

[seal]

BARBARA S. DERUYTER Commission # 1229188 Notary Public - California Santa Clara County My Comm. Expires Jul 17, 2003 My Commission Expires:

4083215064

Attorney Docket No.: 373722002400

STATE OF (COUNTY OF Journ (Wora)

appeared Norm To Konney known to me 2002, personally known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same of his own free will

for the purposes and consideration therein expressed.

[seal]

BARBARA S. DERUYTER Commission # 1229 188 Notary Public - California

Santa Clara County My Comm. Expires Jul 17, 2003

PATENT Docket No. 373722002400 -Client Ref. A063.

DECLARATION FOR UTILITY PATENT APPLICATION

AS BELOW-NAMED INVENTORS, WE HEREBY DECLARE THAT:

Our residences, post office addresses, and citizenships are as stated below next to our names.

We believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled: MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND OTHER OPTICAL DEVICES, the specification of which is attached hereto unless the following box is checked:

was filed on February 27, 2002 as United States Application Serial No.: 10/085,885.

WE HEREBY STATE THAT WE HAVE REVIEWED AND UNDERSTAND THE CONTENTS OF THE ABOVE-IDENTIFIED SPECIFICATION, INCLUDING THE CLAIMS, AS AMENDED BY ANY AMENDMENT REFERRED TO ABOVE.

We acknowledge the duty to disclose information which is material to the patentability as defined in 37 C.F.R. § 1.56.

We hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Application No.	Gounty -	Dafe of Filing : ** (day/month/year).	Priority	Claimed?
			□Yes	□No

We hereby claim benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

Application Serial No.	Filling Date
60/272,337	02/28/01

We hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of

35 U.S.C. § 112, we acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Application Serial No.	Filing Date	Status		
		□Patented	□Pending	□Abandoned

We hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Anthony J. TICKNOR Date Name: 10952 Barranca Drive, Cupertino, California 95014 Residence: United States Citizenship: Post Office Address: same as above Date **Name:** John T. KENNEY Residence: 661 Waverly Street, Palo Alto, California 94301 Citizenship: United States Post Office Address: same as above Giacomo VACCA Date Name: 862 Arbor Road, Menlo Park, California 94025 Residence: United States Citizenship: Post Office Address: same as above 5-1-2002 Dudley A. SAVILLE Date Name Residence: 244 Dodds La., Princeton, New Jersey 08540 Citizenship: United States Post Office Address: same as above

Date

Name:

Ken G. PURCHASE

Residence:

179 Sherland Avenue, Mountain View, California 94043

Citizenship:

United States

Post Office Address:

same as above



assignment TMIOL.



THIS ASSIGNMENT, by Anthony J. TICKNOR, John T. KENNEY, Giacomo VACCA. Dudley A. SAVILLE, and Ken G. PURCHASE (hereinafter referred to as the assignors), residing at 10952 Barranca Drive, Cupertino, California 95014, 661 Waverly Street, Palo Alto, California 94301, 862 Arbor Road, Menlo Park, California 94025, 244 Dodds La., Princeton, New Jersey 08540 and 179 Sherland Avenue, Mountain View, California 94043, respectively, witnesseth:

WHEREAS, said assignors have invented certain new and useful improvements in MICROFLUIDIC CONTROL FOR WAVEGUIDE OPTICAL SWITCHES, VARIABLE ATTENUATORS, AND OTHER OPTICAL DEVICES, set forth in an application for Letters Patent of the United States, bearing Serial No. 10/085,885 and filed on February 27, 2002; and

WHEREAS, Lightwave Microsystems Corporation, a corporation duly organized under and pursuant to the laws of Delaware and having its principal place of business at 2911 Zanker Road, San Jose, California 95134 (hereinafter referred to as the assignee) is desirous of acquiring the entire right, title and interest in and to said inventions and said application for Letters Patent of the United States, and in and to any Letters Patent or Patents, United States or foreign, to be obtained therefor and thereon:

NOW, THEREFORE, in consideration of One Dollar (\$1.00) and other good and sufficient consideration, the receipt of which is hereby acknowledged, said assignors have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto said assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the above-mentioned inventions, application for Letters Patent, and any and all Letters Patent or Patents in the United States of America and all foreign countries which may be granted therefor and thereon, and in and to any and all divisions, continuations and continuations-in-part of said application, or reissues or extensions of said Letters Patent or Patents, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by said assignee, for its own use and the use of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent or Patents may be granted, as fully and entirely as the same would have been held and enjoyed by the assignors, had this sale and assignment not been made.

AND for the same consideration, said assignors hereby covenant and agree to and with said assignee its successors, legal representatives and assigns, that, at the time of execution and delivery of these presents, said assignors are the sole and lawful owners of the entire right, title and interest in and to said inventions and the application for Letters Patent above-mentioned, and that the same are unencumbered and that said assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

AND for the same consideration, said assignors hereby covenant and agree to and with said assignee, its successors, legal representatives and assigns, that said assignors will, whenever counsel of said assignee, or the counsel of its successors, legal representatives and assigns, shall advise that any proceeding in connection with said inventions, or said application for Letters Patent, or any proceeding in connection with Letters Patent for said inventions in any country, including interference proceedings, is lawful and desirable, or that any division, continuation or continuation-inpart of any application for Letters Patent or any reissue or extension of any Letters Patent, to be obtained thereon, is lawful and desirable, sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of Letters Patent for said inventions, without charge to said assignee, its successors, legal representatives and assigns, but at the cost and expense of said assignee, its successors, legal representatives and assigns.

Lightwave Microsystems

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Date	Ken G.PURCHASE		
		COP	Y
STATE OF	·)) ss.		
COUNTY OF)		
anneared		day of, 2002, personally known to me to be the person whose name is	
subscribed to the for for the purposes and	regoing instrument and acknowledged to consideration therein expressed.	o me that he executed the same of his own free will	gy t
	Notar	ry Public	
[seal]	МуС	Commission Expires:	



Date	Anthony J. TICKNOR		
,	·	COPY	
STATE OF)) ss.		
COUNTY OF)	_	
BEFORE I	ME, the undersigned authority, on	this day of, 2002, personally	
appeared	known to me to be the person whose name is		
		ged to me that he executed the same of his own free will	
for the purposes and	consideration therein expressed.		
		Ý .	
	Ī	Notary Public	
[seal]	7	My Commission Expires:	

			ign greite de je norde in de
Date	John T. KENNEY	,	
			C
STATE OF)) ss.		
COUNTY OF)		
appeared	ME, the undersigned authority, on	known to me to be	the person whose name is
	regoing instrument and acknowledg consideration therein expressed.	ed to me that he executed the	ne same of his own free.will
	· <u>7</u>	lotary Public	
[seal]	N	ly Commission Expires:	•

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			Committee and Service and Service and Association and Association
Date	Giacomo VACCA		
	•		
2.			COP
STATE OF)	•	
) ss.		. 0
COUNTY OF)		
PEFODE	MIC the understaned author	ity, on this day of	, 2002, personally
appeared	VIE, the undersigned admor	known to me to be	the person whose name is
subscribed to the for	egoing instrument and ackn	owledged to me that he executed t	he same of his own free will
for the purposes and	consideration therein expres	sed.	
		Notary Public	
[seal]		My Commission Expires:	

Date

Dudley ASTVILLE

COF

STATE OF New Jersey)

COUNTY OF Wea Cere)

BEFORE ME, the undersigned authority, on this appeared Dudley A-Saville known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same of his own free will for the purposes and consideration therein expressed.

[seal]

My Commission Expires:

SHIGINALLY FILED